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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,984	08/18/2003	Henricus Peerlings	PO-7784/LeA 36,205	3487
157	7590	03/23/2005	EXAMINER	
BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205			SERGENT, RABON A	
			ART UNIT	PAPER NUMBER
			1711	
DATE MAILED: 03/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

4)

Office Action Summary	Application No. 10/642,984	Applicant(s) PEERLINGS ET AL.	
	Examiner Rabon Sergent	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/18/03, 1/26/04</u> . | 6) <input type="checkbox"/> Other: ____. |

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1. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants have failed to provide an adequate written description with respect to the subject matter governing standard EN ISO 527-3.

2. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants have failed to provide enablement for the features pertaining to EN ISO 527-3, because the specifics of the standard have not been set forth. In the absence of this information, one of ordinary skill cannot duplicate or realize the claimed features with respect to tensile strength.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is confusing for the following two reasons. Firstly, it is unclear how the prepolymer of (1) is cured; there is no corresponding (2). As drafted, components C) and D) appear to be reactants used in the production of the prepolymer. Furthermore, in view of this ambiguity, it is unclear how to interpret the claimed index limitation. Secondly, components B)

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or C) have not been distinguished from component D); as drafted, the components are not mutually exclusive.

4. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, within claim 2 (and claim 1, if interpreted to require reaction between the prepolymer and both C) and D)), component C) has not been distinguished from component D); as drafted, the components are not mutually exclusive.

Secondly, with respect to component D), applicants have claimed that the component has a functionality of between 1.5 and 3; however, the recited structural formulas appear to only provide for difunctionality.

Thirdly, claims 1 and 2, as presented, are confusing, because it is unclear that formula (II) corresponds to the "phosphine oxides" language within the third line of the definition of D). There is no clear language or punctuation linking the language and formula.

Fourthly, within the definitions of R^1 and R^2 , the use of "may" renders the claims indefinite, because it is unclear if or to what extent the language denoted by "may" is optional.

Lastly, it is confusing to have the same R variables defined differently in the same claim. This issue pertains to claims 1 and 2.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed.

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Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 2 and 5-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 and 7-9 of copending Application No. 10/643,856. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant process is an obvious variant of the process of the copending application. Firstly, the organic phosphorus containing compounds of the instant application encompass the phosphorus containing compounds of the copending application. Secondly, in the instant case, the claims provide for reacting component D) with the prepolymer before reacting C) (claim 5); therefore, upon reaction with D), a prepolymer corresponding to prepolymer II of the copending case will result. As a result, the position is taken that the respective processes involve reacting fully equivalent reactants in the same sequence.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quiring et al. ('684) in view of Pelletier et al. ('047) or Lee ('914) or Lee et al. ('562).

Quiring et al. disclose thermoplastic polyurethanes derived from reactants that correspond to applicants' components (A), (B), and (C) that may be produced by the prepolymer process. See abstract; column 1, lines 55+; column 2; and column 3, lines 12-14. Quiring et al. further disclose within Tables 6 and 8 that tensile strengths in excess of 35 MPa are realized.

9. Quiring et al. fail to disclose applicants' component (D); however, the use of isocyanate reactive phosphonates and phosphine oxides, which correspond to those of applicants, as reactants for the production of polyurethanes was known at the time of invention. Pelletier et al.

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disclose that the incorporation of hydroxyl functional phosphonates within a polyurethane composition conveys fire retardant properties to the polymer. See abstract and column 1.

Similarly, Lee discloses that the incorporation of hydroxyl functional phosphine oxides within a polyurethane composition conveys fire retardant properties to the polymer. See abstract. Lee et al. discloses that that the incorporation of hydroxyl functional phosphine oxides within a polyurethane composition improves physical properties such as increasing tensile strength. See abstract; column 2, lines 32+; and column 5, lines 32-36.

10. Therefore, in view of the advantages of incorporating hydroxyl functional phosphonates or phosphine oxides into polyurethanes, as demonstrated by the secondary references, the position is taken that it would have been *prima facie* obvious to one of ordinary skill in the art to incorporate such compounds into the thermoplastic polyurethane of Quiring et al., so as to obtain a product having improved fire retardancy and/or increased tensile strength.

11. Claims 1-6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batt et al. ('617) in view of Pelletier et al. ('047) or Lee ('914) or Lee et al. ('562).

Batt et al. disclose thermoplastic polyurethanes derived from reactants that correspond to applicants' components (A), (B), and (C) that may be produced by the prepolymer process. Batt et al. further disclose that tensile strengths greater than 35 MPa may be realized. See abstract; column 1, lines 49+; columns 2-4; column 5, lines 3-2, and Table 8.

12. Batt et al. fail to disclose applicants' component (D); however, the use of isocyanate reactive phosphonates and phosphine oxides, which correspond to those of applicants, as reactants for the production of polyurethanes was known at the time of invention. Pelletier et al. disclose that the incorporation of hydroxyl functional phosphonates within a polyurethane

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composition conveys fire retardant properties to the polymer. See abstract and column 1.

Similarly, Lee discloses that the incorporation of hydroxyl functional phosphine oxides within a polyurethane composition conveys fire retardant properties to the polymer. See abstract. Lee et al. discloses that that the incorporation of hydroxyl functional phosphine oxides within a polyurethane composition improves physical properties such as increasing tensile strength. See abstract; column 2, lines 32+; and column 5, lines 32-36.

13. Therefore, in view of the advantages of incorporating hydroxyl functional phosphonates or phosphine oxides into polyurethanes, as demonstrated by the secondary references, the position is taken that it would have been *prima facie* obvious to one of ordinary skill in the art to incorporate such compounds into the thermoplastic polyurethane of Batt et al., so as to obtain a product having improved fire retardancy and/or increased tensile strength.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.


RABON SERGENT
PRIMARY EXAMINER

R. Sergent
March 18, 2005